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☑ 1. Document ID: US 6528569 B1

L10: Entry 1 of 7 File: USPT Mar 4, 2003

US-PAT-NO: 6528569
DOCUMENT-IDENTIFIER: US 6528569 B1

TITLE: Solid water-soluble or water-dispersible compositions

DATE-ISSUED: March 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Oza; Mrinalini Sachin	Maidstone			GB
Landham; Rowena Roshanthi	Maidstone			GB

US-CL-CURRENT: 524/442; 524/35, 524/444, 524/448, 524/449, 524/47, 71/13, 71/27, 71/64.01

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 6048410 A

L10: Entry 2 of 7 File: USPT Apr 11, 2000

US-PAT-NO: 6048410
DOCUMENT-IDENTIFIER: US 6048410 A

TITLE: Method of disposal of hot water soluble garments and like fabrics

DATE-ISSUED: April 11, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Honeycutt; Travis W.	Gainesville	GA		

US-CL-CURRENT: 134/42; 510/296, 510/297, 523/124

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 3. Document ID: US 5997946 A

L10: Entry 3 of 7 File: USPT Dec 7, 1999

US-PAT-NO: 5997946
DOCUMENT-IDENTIFIER: US 5997946 A

TITLE: Solid composition

DATE-ISSUED: December 7, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bell; Gordon Alastair	Maidstone			GB
Landham; Rowena Roshanthi	Tunstall			GB

US-CL-CURRENT: 427/213.3; 264/4.1, 264/4.33, 427/213.31, 427/214, 428/402.2, 428/402.21

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC
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☐ 4. Document ID: US 5871679 A

L10: Entry 4 of 7 File: USPT Feb 16, 1999

US-PAT-NO: 5871679
DOCUMENT-IDENTIFIER: US 5871679 A

TITLE: Method of producing hot water soluble garments and like fabrics

DATE-ISSUED: February 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Honeycutt; Travis W.	Gainesville	GA		

US-CL-CURRENT: 264/185; 264/211, 264/216, 264/563

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 5. Document ID: US 5650219 A

L10: Entry 5 of 7 File: USPT Jul 22, 1997

US-PAT-NO: 5650219
DOCUMENT-IDENTIFIER: US 5650219 A

TITLE: Method of disposal of hot water soluble garments and like fabrics

DATE-ISSUED: July 22, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Honeycutt; Travis W.	Gaineville	GA		

US-CL-CURRENT: 442/400; 264/210.6, 428/409, 442/240, 442/384, 442/401, 442/408

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 6. Document ID: US 5350630 A

L10: Entry 6 of 7 File: USPT Sep 27, 1994

US-PAT-NO: 5350630
DOCUMENT-IDENTIFIER: US 5350630 A
**** See image for Certificate of Correction ****

TITLE: Repulpable securing devices

DATE-ISSUED: September 27, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schreiner; Steven A.	Woodbury	MN		
Albertson; Karen M.	Eagan	MN		
Brown; Mary L.	St. Paul	MN		
Hildebrandt; Camille M.	Stillwater	MN		
Hurlocker; Lacy M.	White Bear Lake	MN		
Webster; Glenn C.	Woodbury	MN		

US-CL-CURRENT: 428/343; 428/350, 428/355R, 524/387, 524/388, 524/503, 526/329.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 7. Document ID: US 5272191 A

L10: Entry 7 of 7 File: USPT Dec 21, 1993

US-PAT-NO: 5272191
DOCUMENT-IDENTIFIER: US 5272191 A

TITLE: Cold water soluble films and film forming compositions

DATE-ISSUED: December 21, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ibrahim; Nagui I.	East Windsor	NJ		
Herbert; Richard M.	Langhorne	PA		

US-CL-CURRENT: 524/35; 524/43, 524/44, 524/45, 525/54.23

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

L10: Entry 1 of 7 File: USPT Mar 4, 2003

DOCUMENT-IDENTIFIER: US 6528569 B1
TITLE: Solid water-soluble or water-dispersible compositions

Abstract Text (1):
The invention provides processes for producing solid, water-soluble or water-dispersible compositions comprising non film-forming materials, such as water-soluble agrochemical electrolytes, supported by film-forming polymers. The water-soluble agrochemical electrolytes can be salts of glyphosate. The processes comprise (i) preparing film-forming aqueous media containing (a) film-forming polymers; (b) water-soluble materials which are non film-forming; (c) water-miscible solvents in which the film-forming polymers are soluble and, optionally, (d) solid fillers, and thereafter (ii) drying the film-forming aqueous media to form the solid compositions. The invention also provides compositions produced by these processes.

Brief Summary Text (7):
Whilst the process of the present invention may be applied to any water-soluble material which is not film-forming and which is suitable for being supported in a solid composition of a film-forming polymer, it is of particular relevance when the water-soluble supported material is a strong electrolyte and even more particularly when the water-soluble supported material, in its dry form, is hygroscopic. Typical strong electrolytes are salts, for example inorganic salts or salts of an organic acid or base. The scope of the present invention is not restricted to a water-soluble supported material having a specific utility, although it is illustrated herein with reference to a water-soluble supported material having utility in the agrochemical field, either as an active agrochemical or as an agrochemical adjuvant. Typical examples of water-soluble active agrochemicals which are strong electrolytes are salts of glyphosate, including without limitation the trimethylsulphonium salt, the isopropylamine salt, the sodium salt, the potassium salt and the ammonium salt and bipyridylium salts such as paraquat dichloride, glufosinate and fomesafen.

Brief Summary Text (8):
Typical examples of agrochemical adjuvants which are strong electrolytes are organic or inorganic salts such as ammonium sulphate. The process of the present invention provides a convenient method of obtaining a solid formulation of an agrochemical or an agrochemical adjuvant or an agrochemical formulation containing both active agrochemical and adjuvant having advantages in respect of handling, storage, transportation and reduced container contamination. Typical solid formulations of the present invention such as tapes or flakes provide a convenient delivery vehicle for the agrochemical or agrochemical formulation and may be arranged for example such that a single unit dose of agrochemical is contained in a unit dose package, for example in a conventional unit dose package or in water-soluble sachet packaging. If the process of the present invention is used to form a cast tape, the tape may be cut to provide a length corresponding to a desired dose. Furthermore we have found that the process of the present invention may be used to provide solid compositions containing a higher loading of agrochemical or agrochemical adjuvant than would be possible in the absence of water-miscible solvent. In certain circumstances the process of the present invention may be used to provide a solid composition containing an agrochemical formulation whose individual components are incompatible if used in the form of an aqueous liquid concentrate. Thus for example it may be possible to use a higher content of an adjuvant such as ammonium sulphate than would be compatible as an aqueous liquid concentrate formulation of an

agrochemical.

Brief Summary Text (11):
The solid filler is preferably a water-dispersible solid inorganic or organic filler such as calcium silicate, magnesium silicate (talc), sodium aluminium silicate, silica, mica, cellulosic fibre such as wood fibre, starch and diatomaceous earth. It is especially preferred that a highly adsorptive filler is used, for example a filler having a high surface area for example a surface area greater than 5 m.sup.2 /g and preferably greater than 80 m.sup.2 /g. As a specific example of a suitable filler there may be mentioned CALFLO E (CALFLO is a trade mark World Minerals), a calcium silicate filler having a surface area of about 100 m.sup.2 /g.

Brief Summary Text (15):
The film-forming aqueous medium is preferably formed by first dissolving the film-forming polymer in the relevant water-miscible solvent. To avoid unnecessary reduction in the film-forning properties of the polymer, it is preferred to dissolve the film-forming polymer in the minimum quantity of solvent. The solubility of the film-forming polymer in any given solvent may be readily determined, and illustrative proportions are given in the Examples. The solid filler, if used, is conveniently dispersed in the solution of the film-forming polymer in the solvent and the resultant mixture is then added to an aqueous solution of the water-soluble material which is not film-forming, for example to an aqueous solution of an agrochemical. Alternative orders of addition are equally acceptable but dispersion of the solid filler in the solution of the film-forming polymer in the solvent is generally easier than dispersion in the aqueous solution of the agrochemical.

Brief Summary Text (17):
The physical form of the resultant solid composition will depend on the exact manner of drying of the film-forming aqueous medium and a wide variety of processes may be used to provide a wide range of solid products. For example simple drying of the film-forming aqueous medium will generally form a powder or agglomerate. Greater control of the formation of a powder or granule product may be obtained by spray drying or freeze drying of the film-forming aqueous medium. The film-forming medium may be partially or wholly formed into fibres, for example by being extruded into a fast-moving stream of air, and the resultant solid composition may take the form of fibres or of a uniform particulate composition resulting from the breaking up of such fibres on further drying. The film forming aqueous medium can also be applied on an anti-adherent, rotating drum surface by means of a roller and subsequently dried by hot air to yield dry flakes. Alternatively the film-forming material may be cast in the form of a film onto a substrate, for example a conveyor belt, from which it is preferably removed after drying.

Brief Summary Text (22):
The thickness of the cast product, for example the cast tape or flakes, may be varied within wide limits according to the desired application. Typically the thickness of a cast tape or flakes varies between about 0.04 mm to 5 mm depending on the flexibility and other characteristics desired. If flakes are not formed directly, the dry tapes can be cut or fashioned to include a wide variety of shapes and designs, including for example discs, flakes, strips, tubes and spirals. The tape can be cut to provide a pre-determined metered dose of active ingredient which simplifies the formation of a dilute agrochemical spray for example. The tapes may also be embossed, corrugated or patterned to increase the surface area and may also carry printed information such as product and safety information.

Brief Summary Text (23):
For certain applications it may be desirable to protect the surface of the cast, dry product. The surface of the cast product may readily be protected by lamination or co-casting with a layer of water-soluble polymer which contains no active product and which may be the same as or different from the film-forming polymer. Alternatively, the cast, dry product may be housed in a water-soluble bag which may be manufactured from the same or different water-soluble polymer.

Brief Summary Text (26):
As noted above, it is a particular advantage of the process of the present invention that a high loading of the water-soluble supported material may if desired be

obtained in the solid composition. For example in favourable circumstances greater than about from 40% or 50% and even up to as high as 70% or more by weight of a water-soluble supported material such as an agrochemical active ingredient may be incorporated in the solid composition of the invention. This itself carries with it a further advantage in that potential problems of poor dispersion of the solid composition in water may be greatly reduced when a major proportion of the solid composition is the water-soluble agrochemical. It may thus for example be possible to use a film-forming polymer or other components which would otherwise give rise to dispersion problems if used at higher concentrations or if used in conjunction with water-insoluble components. It is of course possible to use lower proportions of water-soluble supported material, for example 20% or less by weight, if desired but some of the advantages of the present invention may not be so apparent in such products.

Brief Summary Text (27):
According to a further aspect of the present invention there is provided a solid, water-dispersible composition comprising a water-soluble agrochemical electrolyte, a film-forming polymer and a solid filler wherein the concentration of the water-soluble agrochemical electrolyte in the composition is greater than 60% and preferably greater than 70% by weight.

Brief Summary Text (33):
Surfactants may be added to the film-forming aqueous medium both to enhance the rate of dispersion of the dry product in water and also to affect the surface tension properties of the film-forming aqueous medium relative to a substrate on which it is cast. Thus for example a wetter may be added to ensure wetting of the substrate, for example if a plastics substrate is used. If it is desired to produce cast tapes rather than flakes, surfactants may also be added which modify the surface tension of the wet cast film and ensure that on drying the film reduces in thickness with minimum shrinkage in the plane of the substrate on which it is cast. A wide variety of surfactants may be used for these purposes and suitable examples will occur to one skilled in the art. Solid surfactants may be present in relatively high loading in the cast product and may be used for example to provide adjuvant properties in the final application, for example as a wetter in a spray solution for agrochemical use.

CLAIMS:

3. A process according to claim 2 wherein the solid filler is calcium silicate, magnesium silicate, sodium aluminium silicate, silica, mica, a cellulosic fibre, starch or a diatomaceous earth.

12. The process of claim 1, wherein the water soluble material which is non film-forming is an electrolyte of an agrochemical, an electrolyte of an agrochemical adjuvant or a mixture thereof.

17. The process of claim 2, wherein the water soluble material which is non film-forming is an electrolyte of an agrochemical, an electrolyte of an agrochemical adjuvant or a mixture thereof.

L10: Entry 3 of 7 File: USPT Dec 7, 1999

DOCUMENT-IDENTIFIER: US 5997946 A
TITLE: Solid composition

Brief Summary Text (2):
Microencapsulation is a technique used in a variety of industries including for example the agrochemical industry. The technique of microencapsulation generally involves the formation of a dispersion or emulsion of a relatively water-immiscible liquid in an aqueous medium to form an oil phase. The oil phase contains the material to be encapsulated, for example a liquid, water-immiscible agrochemical, as well as one or more monomers which forms a polymeric microcapsule wall surrounding the oil phase droplet when polymerisation is initiated, for example by heating. A large number of variants of the microencapsulation process are known. Thus, for example, the liquid, water-immiscible pesticide which forms the material to be encapsulated may be a low-melting solid agrochemical which is emulsified as a melt or the liquid, water-immiscible agrochemical may be a solution of a solid agrochemical in an appropriate water-immiscible solvent. As used herein the term "microencapsulated material" means any material housed within a polymeric microcapsule shell. As noted above, the microencapsulated material is generally a relatively water-immiscible material and is formed as a suspension of the microcapsules in an aqueous phase.

Brief Summary Text (3):
Microencapsulated materials have a number of advantages as compared with a simple oil-in-water emulsion. In the agrochemical industry for example, microencapsulated suspension formulations are used to reduce toxicity and operator exposure as compared with simple emulsion concentrate formulations. Microencapsulated suspension formulations are also used to provide controlled release of the agrochemical, the rate of release being determined for example by the thickness of the wall of the microcapsule and by the nature of the polymeric wall material.

Brief Summary Text (4):
As noted above, microencapsulated formulations are manufactured and used in the form of an aqueous suspension. In agrochemical use for example, the suspension is generally diluted prior to use. There is however increasing interest in the agrochemical industry in the use of solid rather than liquid formulations, since such formulations have advantages in terms of reduced transport costs, greater ease of handling and greater customer acceptability. Container contamination may also be greatly reduced by the use of a day, solid formulation and container disposal may thus be simplified. We have found however that conventional methods for the conversion of liquid formulations into solid compositions, for example conventional granulation techniques, fail with microencapsulated suspensions because the processing involved tends to rupture the microcapsule wall and release the microencapsulated material. There is thus a need for a solid formulation of a microencapsulated material in which the microcapsules remain largely intact and which permits the regeneration of a suspension of microencapsulated material when the solid formulation is dissolved in water.

Brief Summary Text (10):
Thus according to a further aspect of the present invention there is provided a solid, microencapsulated product, for example a microencapsulated agrochemical product, comprising a microencapsulated material contained within a cast, water-soluble, film-forming polymer.

Brief Summary Text (15):
The process of the present invention is applicable in particular to the formation of a solid, microencapsulated product containing a solid or liquid agrochemical product such as a herbicide, insecticide, fungicide, plant growth regulator, nematocide or an agrochemical adjuvant. The scope of the invention is not however limited to agrochemical products, and may be applied to any suitable microencapsulated product.

Brief Summary Text (17):
The rate of dissolution of the cast product in water will depend on a number of factors, including in particular the nature of the film-forming polymer and the microencapsulated material. In some applications of the present invention it is desirable for the cast product to dissolve rapidly when added to water. For example if the cast product contains an agrochemical which it is desired to dissolve in a spray tank to form a suspended microencapsulated material, then relatively rapid dissolution will be desired. In an alternative embodiment of the present invention, it may be desired to form a cast product which is not added to water but which releases the microencapsulated product slowly over a period of time, for example under the influence of moisture in the atmosphere or as a result of slow diffusion of active material through the microcapsule walls and thence through the solid water-soluble polymer. An example of this application for example is the formation of a cast tape containing a public health product which is located in the home and slowly releases insecticide or other active material.

Brief Summary Text (19):
Film-forming polymers which form cast products which dissolve very rapidly in water may also tend to adsorb water from the atmosphere so that the surface may become slightly tacky to the touch. It is possible to protect the surface, for example by lamination as hereinafter described. Alternatively a compromise may be reached between an advantageous rate of dissolution and minimum tackiness by selection of the molecular weight of the polymer or by using a mixture of rapidly dissolving polymer such as polyvinylpyrrolidone of molecular weight from 40,000 to 50,000 and a less rapidly dissolving polymer such as carboxymethylcellulose. There is generally no particular need for the cast product, for example the cast film, to show particular strength since it merely has to have sufficient integrity to be handled before it is dissolved. If however the cast product of the invention such as the cast film is to be used as a container, for example as a water-soluble bag container, it may be desirable to use a relatively strong polymer such as polyvinyl alcohol or partially hydrolysed polyvinylacetate.

Brief Summary Text (26):
Surfactants may be added to the film-forming aqueous medium both to enhance the rate of dispersion of the dry, cast product in water and also to affect the surface tension properties of the film-forming aqueous medium relative to the substrate on which it is cast. Thus for example a wetter may be added to ensure wetting of the substrate, for example if a plastics substrate is used. Surfactants may also be added which modify the surface tension of the wet cast film and ensure that on drying the film reduces in thickness with minimum shrinkage in the plane of the substrate on which it is cast. A wide variety of surfactants may be used for these purposes and suitable examples will occur to one skilled in the art. Solid surfactants may be present in relatively high loading in the cast product and may be used for example to provide adjuvant properties in the final application, for example as a wetter in a spray solution for agrochemical use.

Brief Summary Text (28):
An inert filler may if desired be added to provide a correspondingly filled dry, cast product having properties normally associated with filled plastics products. Suitable fillers include organic or inorganic materials such as silica, mica, cellulosic fibre such as wood fibre, diatomaceous earth and urea. In general the use of an inert filler will provide an dry, low-cost and readily worked tape. Tapes containing an inert filler will in general however be slower to dissolve than a corresponding tape without a filler.

Brief Summary Text (32):

The thickness of the cast product, for example the cast tape, may be varied within wide limits according to the desired application. Typically the thickness of a cast tape varies between about 0.04 mm to 5 mm depending on the flexibility and other characteristics desired. The dry tapes can be cut or fashioned to include a wide variety of shapes and designs, including for example discs, flakes, strips, tubes and spirals. The tape can be cut to provide a pre-determined metered dose of active ingredient which simplifies the formation of a dilute agrochemical spray for example. The tapes may also be embossed, corrugated or patterned to increase the surface area and may also carry printed information such as product and safety information.

Brief Summary Text (33):
For certain applications it may be desirable to protect the surface of the cast, dry product. For example it may be desired to protect a layer of microcapsules situated at or on the surface of the dry, cast product from damage. Alternatively, it may be desired to use a rapidly dispersing film-forming polymer which provides a certain "tackiness" of surface and which is suitably protected for some applications by a non-tacky finish. The surface of the cast product may readily be protected by lamination or co-casting with a layer of water-soluble polymer which contains no microencapsulated product and which may be the same as or different from the film-forming polymer. Alternatively, the cast, dry product may be housed in a water-soluble bag which may be manufactured from the same or different water-soluble polymer.

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L10: Entry 7 of 7 File: USPT Dec 21, 1993

DOCUMENT-IDENTIFIER: US 5272191 A
TITLE: Cold water soluble films and film forming compositions

Brief Summary Text (5):
Typical of active agents packaged in this manner are household cleaning products such as soaps, detergents, dyes and bleaches; agricultural chemicals such as fertilizers, herbicides and fungicides, and pesticides such as insecticides and nematicides; industrial process chemicals such as carbo black, activated charcoal, biocides, and other functional compounds; pharmaceuticals including solids and liquids; and generally any agents requiring protection prior to being added to an aqueous medium.

Brief Summary Text (16):
U.S. Pat. No. 4,806,261, Ciallella et al., describes packaging films for detergents comprising laminates of PVA and a water soluble cellulose compound such as carboxymethyl cellulose (CMC), sodium salt, combined with cellulose fibers.

Detailed Description Text (3):
It will be evident that a wide variety of film forming water soluble polymers can be used as packaging and protective films, including synthetic and natural polymers, and mixtures thereof, as described in standard textbooks on the subject and the patent literature. For example, in addition to the U.S. patents cited above, Japanese unexamined patent applications J01317506a published Dec. 22, 1989, and J60061504a published Apr. 9, 1985, describe water soluble films of PVA, PVP, methylcellulose, cellulose acetate, polyethylene oxide, gelatin, partially saponified PVA, CMC, dextrin, starch, hydroxyethyl cellulose, agar, pectin, and others for the packaging of process chemicals such as sodium sulfate and solid agricultural chemicals. Similarly, British patent 2191379 granted Dec. 16, 1987, describes the packaging of animal feed supplements in a plastic film of PVA, polyvinyl acetate, ethylene/vinyl acetate copolymer or an alkylcellulose ester. The disclosures of all of the above cited patents and patent applications are incorporated herein by reference.

Detailed Description Text (32):
DISINTEGRATION OF AGED WATER SOLUBLE BAGS CONTAINING AGRICULTURAL PESTICIDE

Detailed Description Text (33):
Into a Monosol 2000.RTM. water soluble polyvinyl alcohol (Chris-Craft Industrial Products Corp.) bag, containing no CMC disintegrant, was placed 7.5 g of a 50% active ingredient wettable powder formulation of cypermethrin. A second water soluble bag, prepared using the film forming composition and process of Example 2A, was also filled with 7.5 g of a 50% active ingredient wettable powder formulation of cypermethrin. Both bags were heat sealed and placed in separate foil lined paper packets. These packets were placed in a 50.degree. C. oven for forty-two weeks. The packets were removed from the oven and were allowed to cool to room temperature. The packets were opened and the water soluble bags were removed. Each bag was placed on the surface of approximately four liters of ice water (no stirring), and the times for initial and complete disintegration were recorded and general observations were made.

Detailed Description Text (34):

For the water soluble bag made of Monosol 2000 film, initial disintegration was at 130 seconds and complete disintegration occurred at 555 seconds. The initial disintegration for the bag prepared as in Example 1 was 120 seconds and complete disintegration was complete after 210 seconds.

Detailed Description Text (37):
The foregoing experiment demonstrates the effectiveness of the sodium CMC as a disintegrant of pesticide containing water soluble bags, even after storage at 50.degree. C. for extended periods.

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Search: L8

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Search History

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☐ 1. Document ID: US 6511746 B1

L8: Entry 1 of 23 File: USPT Jan 28, 2003

US-PAT-NO: 6511746
DOCUMENT-IDENTIFIER: US 6511746 B1

TITLE: Cellulosic microfibers

DATE-ISSUED: January 28, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Collier; John R.	Baton Rouge	LA		
Negulescu; Ioan I.	Baton Rouge	LA		
Collier; Billie J.	Baton Rouge	LA		

US-CL-CURRENT: 428/359; 428/393

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 2. Document ID: US 6488811 B1

L8: Entry 2 of 23 File: USPT Dec 3, 2002

US-PAT-NO: 6488811
DOCUMENT-IDENTIFIER: US 6488811 B1

TITLE: Multicomponent mats of glass fibers and natural fibers and their method of manufacture

DATE-ISSUED: December 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dong; Daojie	Westerville	OH		

US-CL-CURRENT: 162/145; 162/148, 162/149, 162/171

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 3. Document ID: US 6436288 B1

L8: Entry 3 of 23 File: USPT Aug 20, 2002

US-PAT-NO: 6436288
DOCUMENT-IDENTIFIER: US 6436288 B1

TITLE: Bast medium biological reactor treatment system for remediation and odor suppression of organic waste streams

DATE-ISSUED: August 20, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Burcham; Timothy N.	Mississippi State	MS		
Jones; Jeffrey	Mississippi State	MS		
Columbus; Eugene P.	Mississippi State	MS		
Zappi; Mark E.	Mississippi State	MS		

US-CL-CURRENT: 210/602; 210/505, 210/605, 210/615, 210/630, 210/916

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 4. Document ID: US 6357176 B2

L8: Entry 4 of 23 File: USPT Mar 19, 2002

US-PAT-NO: 6357176
DOCUMENT-IDENTIFIER: US 6357176 B2

TITLE: Soilless sod

DATE-ISSUED: March 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Baldwin; Brian S.	Mississippi State	MS		
Goatley, Jr.; J. Michael	Mississippi State	MS		
Fuller; Marty J.	Mississippi State	MS		
Reichert; Nancy A.	Mississippi State	MS		
Hensler; Kevin L.	Mississippi State	MS		

US-CL-CURRENT: 47/56

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 5. Document ID: US 6290885 B1

L8: Entry 5 of 23 File: USPT Sep 18, 2001

US-PAT-NO: 6290885
DOCUMENT-IDENTIFIER: US 6290885 B1
**** See image for Certificate of Correction ****

TITLE: Method of making a fiber-reinforced molded plastic roofing unit

DATE-ISSUED: September 18, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roetheli; Joseph C.	Kansas City	MO		
Evans; Tony J.	Stilwell	KS		
Pratt; D. Kevin	Shawnee	KS		
Alexander; Robert Joseph	Lamar	MO		

US-CL-CURRENT: 264/108; 264/328.18, 264/336, 52/745.19

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☑ 6. Document ID: US 6261679 B1

L8: Entry 6 of 23 File: USPT Jul 17, 2001

US-PAT-NO: 6261679
DOCUMENT-IDENTIFIER: US 6261679 B1

TITLE: Fibrous absorbent material and methods of making the same

DATE-ISSUED: July 17, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chen; Fung-jou	Appleton	WI		
Lindsay; Jeffrey Dean	Appleton	WI		
Qin; Jian	Appleton	WI		
Li; Yong	Appleton	WI		

US-CL-CURRENT: 428/317.9; 264/45.2, 264/45.3, 425/4C, 427/244, 428/317.1, 428/317.7

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 7. Document ID: US 6214163 B1

L8: Entry 7 of 23 File: USPT Apr 10, 2001

US-PAT-NO: 6214163
DOCUMENT-IDENTIFIER: US 6214163 B1

TITLE: Super microfibrillated cellulose, process for producing the same, and coated paper and tinted paper using the same

DATE-ISSUED: April 10, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Matsuda; Yuji	Suntou-gun			JP
Hirose; Mariko	Mishima			JP
Ueno; Katsuhiko	Mishima			JP

US-CL-CURRENT: 162/9; 162/100, 162/129, 162/130, 162/135, 162/162, 162/28

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 8. Document ID: US 6197414 B1

L8: Entry 8 of 23 File: USPT Mar 6, 2001

US-PAT-NO: 6197414
DOCUMENT-IDENTIFIER: US 6197414 B1

TITLE: Fiberboard and manufacturing method thereof

DATE-ISSUED: March 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kawai; Shuichi	Kyoto			JP
Ohnishi; Kenji	Osaka			JP
Okudaira; Yuzo	Hyogo-ken			JP
Sugawara; Ryo	Osaka			JP
Ueda; Takumi	Nara			JP

US-CL-CURRENT: 428/297.4; 428/292.4, 428/298.1, 428/300.7, 428/301.4, 428/537.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 9. Document ID: US 6183596 B1

L8: Entry 9 of 23 File: USPT Feb 6, 2001

US-PAT-NO: 6183596
DOCUMENT-IDENTIFIER: US 6183596 B1

TITLE: Super microfibrillated cellulose, process for producing the same, and coated paper and tinted paper using the same

DATE-ISSUED: February 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Matsuda; Yuji	Suntou-gun			JP
Hirose; Mariko	Mishima			JP
Ueno; Katsuhiko	Mishima			JP

US-CL-CURRENT: 162/9; 162/100, 162/176, 162/187

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 10. Document ID: US 6164034 A

L8: Entry 10 of 23 File: USPT Dec 26, 2000

US-PAT-NO: 6164034
DOCUMENT-IDENTIFIER: US 6164034 A
**** See image for Certificate of Correction ****

TITLE: Fiber-reinforced molded plastic roofing unit and method of making the same

DATE-ISSUED: December 26, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roetheli; Joseph C.	Kansas City	MO		
Evans; Tony J.	Stilwell	MO		
Pratt; D. Kevin	Shawnee	MO		
Alexander; Robert Joseph	Lamar	MO		

US-CL-CURRENT: 52/560; 428/292.4, 428/295.1, 428/296.1, 52/537, 52/558

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 11. Document ID: US 6163943 A

L8: Entry 11 of 23 File: USPT Dec 26, 2000

US-PAT-NO: 6163943
DOCUMENT-IDENTIFIER: US 6163943 A

TITLE: Method of producing a nonwoven material

DATE-ISSUED: December 26, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Johansson; Bernt	Molnlycke			SE
Fingal; Lars	Gothenburg			SE

US-CL-CURRENT: 28/104; 162/115

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 12. Document ID: US 6153136 A

L8: Entry 12 of 23 File: USPT Nov 28, 2000

US-PAT-NO: 6153136
DOCUMENT-IDENTIFIER: US 6153136 A

TITLE: Process for manufacturing cellulosic microfibers

DATE-ISSUED: November 28, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Collier; John R.	Baton Rouge	LA		
Negulescu; Ioan I.	Baton Rouge	LA		
Collier; Billie J.	Baton Rouge	LA		

US-CL-CURRENT: 264/103; 264/205

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 13. Document ID: US 5958130 A

L8: Entry 13 of 23 File: USPT Sep 28, 1999

US-PAT-NO: 5958130
DOCUMENT-IDENTIFIER: US 5958130 A

TITLE: Biological fiber containing construction compound

DATE-ISSUED: September 28, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stroeml; Karl F.	A-8280 Fuerstenfeld			AT
Uiberlacker; Gerhard	Oehling			AT

US-CL-CURRENT: 106/653; 106/731

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☑ 14. Document ID: US 5869173 A

L8: Entry 14 of 23 File: USPT Feb 9, 1999

US-PAT-NO: 5869173
DOCUMENT-IDENTIFIER: US 5869173 A

TITLE: Composite material and method for the preparation thereof

DATE-ISSUED: February 9, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Zheng; Qing	Midland	MI		
Morgan; Roger J.	Midland	MI		
Jurek; Robert	Midland	MI		

US-CL-CURRENT: 428/313.3; 264/122, 264/455, 428/313.5, 428/313.7, 428/313.9, 428/314.8, 428/317.9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 15. Document ID: US 5853538 A

L8: Entry 15 of 23 File: USPT Dec 29, 1998

US-PAT-NO: 5853538
DOCUMENT-IDENTIFIER: US 5853538 A

TITLE: Method of producing a nonwoven material and nonwoven material produced according to the method

DATE-ISSUED: December 29, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Reiner; Lennart	Matfors			SE

US-CL-CURRENT: 162/101; 162/190

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 16. Document ID: US 5849153 A

L8: Entry 16 of 23 File: USPT Dec 15, 1998

US-PAT-NO: 5849153
DOCUMENT-IDENTIFIER: US 5849153 A

TITLE: Water-dispersible sheet and cigarette using the same

DATE-ISSUED: December 15, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ishino; Yoshiaki	Fuji			JP
Shishikura; Masato	Numazu			JP
Tsujimoto; Toru	Tokyo			JP
Minamisawa; Susumu	Tokyo			JP

US-CL-CURRENT: 162/135; 162/146, 162/158, 162/168.1, 162/174, 162/175, 162/177, 162/181.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 17. Document ID: US 5722433 A

L8: Entry 17 of 23 File: USPT Mar 3, 1998

US-PAT-NO: 5722433
DOCUMENT-IDENTIFIER: US 5722433 A

TITLE: Water-dispersible sheet for cigarettes and cigarette using the same

DATE-ISSUED: March 3, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ishino; Yoshiaki	Fuji			JP
Shishikura; Masato	Numazu			JP
Tsujimoto; Toru	Tokyo			JP
Minamisawa; Susumu	Tokyo			JP

US-CL-CURRENT: 131/365; 131/331, 131/361, 131/362, 162/139, 428/372

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 18. Document ID: US 5720851 A

L8: Entry 18 of 23 File: USPT Feb 24, 1998

US-PAT-NO: 5720851
DOCUMENT-IDENTIFIER: US 5720851 A

TITLE: Method and arrangement for producing a foam-formed fibre or paper web

DATE-ISSUED: February 24, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Reiner; Lennart	Matfors			SE

US-CL-CURRENT: 162/101; 162/190, 162/264, 162/289

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 19. Document ID: US 5542940 A

L8: Entry 19 of 23 File: USPT Aug 6, 1996

US-PAT-NO: 5542940
DOCUMENT-IDENTIFIER: US 5542940 A

TITLE: Biodegradable disposable diaper

DATE-ISSUED: August 6, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jonker; Johannes C.	3068 KE Rotterdam			NL

US-CL-CURRENT: 604/367; 604/358, 604/378, 604/384

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 20. Document ID: US 5492756 A

L8: Entry 20 of 23 File: USPT Feb 20, 1996

US-PAT-NO: 5492756
DOCUMENT-IDENTIFIER: US 5492756 A
**** See image for Certificate of Correction ****

TITLE: Kenaf core board material

DATE-ISSUED: February 20, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Seale; Roy D.	Starkville	MS		
Sellers, Jr.; Terry	Starkville	MS		
Fuller; Marty J.	Starkville	MS		

US-CL-CURRENT: 428/326; 156/275.5, 156/62.2, 264/115, 264/122, 428/323, 428/338, 428/339, 428/411.1, 428/507, 428/526, 428/533

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☐ 21. Document ID: US 5433825 A

L8: Entry 21 of 23 File: USPT Jul 18, 1995

US-PAT-NO: 5433825
DOCUMENT-IDENTIFIER: US 5433825 A

TITLE: Method for pulping wood chips separate alkali and peroxymonosulfate treatments

DATE-ISSUED: July 18, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Minor; James L.	Middleton	WI		
Springer; Edward L.	Madison	WI		

US-CL-CURRENT: 162/86; 162/78, 162/82, 162/90

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☑ 22. Document ID: US 5415736 A

L8: Entry 22 of 23 File: USPT May 16, 1995

US-PAT-NO: 5415736
DOCUMENT-IDENTIFIER: US 5415736 A

TITLE: Natural fiber containing sheet material

DATE-ISSUED: May 16, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Grether; Till	CH-9220 Bischofszell			CH

US-CL-CURRENT: 162/111; 162/112, 162/135, 162/141, 162/142, 162/147, 162/148, 162/158, 162/168.1, 162/168.3, 162/175, 162/178, 47/56, 47/9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 23. Document ID: US 4106979 A

L8: Entry 23 of 23 File: USPT Aug 15, 1978

US-PAT-NO: 4106979
DOCUMENT-IDENTIFIER: US 4106979 A

TITLE: Preparation of paper pulps from dicotyledonous plants

DATE-ISSUED: August 15, 1978

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ruffini; Guglielmo	Lovere			IT
Pezzotti; Erio	Cassano Magnago			IT

US-CL-CURRENT: 162/73; 162/76, 162/78, 162/85, 162/86, 162/89, 162/90, 162/93, 162/98, 8/109, 8/110, 8/111

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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L8: Entry 6 of 23 File: USPT Jul 17, 2001

DOCUMENT-IDENTIFIER: US 6261679 B1
TITLE: Fibrous absorbent material and methods of making the same

Brief Summary Text (79):
The hydrophilic fibers can be any known cellulosic or papermaking fibers, as hereafter defined, such as hardwood or softwood fibers. Hardwood fibers can provide small cells and good strength, such as when the hydrophilic fibers comprise about 30% or more hardwood fibers and more particularly about 50% or more hardwood fibers, while softwood fibers can contribute to higher bulk and good resiliency and stiffness, when desired, such as when the hydrophilic fibers comprise about 30% or more softwood fibers and more particularly about 50% or more softwood fibers. Natural cellulosic fibers such as cotton, kenaf, milkweed, and others can be used, as well as chemically modified or synthetically produced cellulosic fibers. Short hydrophilic textile fibers can also be used, provided the fiber length is suitably short to permit suitable distribution of the fibers by the structuring composition, with average fiber lengths desirably being less than about 15 mm and more desirably less than about 10 mm, with an exemplary range of about 0.5 mm to about 7 mm and more specifically from about 1 mm to about 5 mm. Hydrophilic fibers derived from chitin, chitosan, starch, or other polysaccharides can also be used, though cellulosic fibers generally offer significant benefits due to their abundance, their absorbent nature, and ease of preparation.

L8: Entry 14 of 23 File: USPT Feb 9, 1999

DOCUMENT-IDENTIFIER: US 5869173 A
TITLE: Composite material and method for the preparation thereof

Detailed Description Text (43):
The densities and strengths were not satisfactory. The flexural strength of the system are about 2000 psi for all compositions. The modulus decreases slightly with increasing of kenaf fiber parts. However, for 60 parts fiber, a large scatter were observed in both strength and modulus data. The reason for this scatter is that the kenaf used is scrap which contains about half fibers and half chunks (in few mm size). More kenaf chunks in specimen made the material weaker, which was confirmed by existence of failed kenaf chunks on the fracture surfaces.

L8: Entry 22 of 23 File: USPT May 16, 1995

DOCUMENT-IDENTIFIER: US 5415736 A
TITLE: Natural fiber containing sheet material

Brief Summary Text (22):
The second major component of the sheet material of the invention, namely the cellulosic long-staple fiber material, may be selected from a multitude of sources, with the exception of mixed waste paper. Such sources are for example sulfate pulp or kraft pulp, then and preferably industrial wastes from the paper making industry such as cut-off border portions, punching chips, refuse and broke. A long-staple fraction of kenaf or esparto can also be used whereas the short-staple fiber fractions of these plants and the fines can be used as the primary fiber material. The length of the fibers of this second component of the sheet material of the invention is in the range of from about 2 to 13 mm, a fraction having an average fiber length of about 7 mm being preferred.

Detailed Description Text (8):
The procedure of Example 1 is repeated with the exception that the peat is replaced by a long-staple fiber fraction (12 to 15 mm) and a fines fraction (0.5 to 2 mm) of processed Kenaf plant portions.

Detailed Description Text (12):
The procedure of Example 1 is repeated with the exception that both the sulfate, cellulose and the peat are replaced by a mixture of short-staple kenaf fibers (length about 5 to 8 mm) and long-staple ones (length about 12 to 15 mm), and that a board paper machine is used. Circular filter paper sheets are obtained which may perfectly replace cellulose filter papers.

CLAIMS:

1. A wet laid sheet material containing natural fibers, comprising (A) a natural, chemically untreated kenaf fiber material having a length in the range of about 2 to 13 mm and (B) a natural cellulosic long-staple fiber material with the exception of mixed paper wastes and having a length different from the length of fiber (A) in the range of about 2 to 15 mm, in which the weight ratio of components (A) and (B) is comprised in the range of from about 50 to 90 parts of (A) to about 10 to 50 parts of (B) based on a total weight of components (A) and (B) of 100 parts, and that the sheet material further contains fiber fines, at least one retention agent for the fines and at least one agent for improving the strength of the sheet material.

11. Sheet material according to claim 1, wherein the natural, chemically untreated fiber material is derived from kenaf plant parts whose fibrous material has been separated into at least three fractions, the first fraction (I) comprising long-staple fibers having a length in the range of from about 10 to 15 mm, the second fraction (II) comprising short-staple fibers having a length of from about 4 to 10 mm, and a fines fraction (III) having a size of from 0.5 to 3 mm, the sheet material containing at least one of these three fractions.

15. A process for the manufacture of the sheet material, comprising (A) a natural, chemically untreated kenaf fiber material having a length in the range of about 2 to 13 mm, (B) a natural cellulosic long staple fiber material with the exception of mixed paper wastes and having a length different from fiber (A) in the range of about 2 to 15 mm, and fiber fines, components (A) and (B) are present in a weight

ratio in the range of about 50 to 90 parts of (A) to about 10 to 50 parts of (B) based on a total weight of components (A) and (B) of 100 parts, said process comprising preparing an aqueous mash of said fiber materials (A), (B) and fiber fines, adding at least one retention agent for fines and at least one web strength improving agent to said aqueous mash to form a combined mash, the combined mash is refined, forming a sheet from said combined mash on a paper making machine, and winding said sheet into rolls.

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L8: Entry 23 of 23 File: USPT Aug 15, 1978

DOCUMENT-IDENTIFIER: US 4106979 A
TITLE: Preparation of paper pulps from dicotyledonous plants

Detailed Description Text (2):
500 g. (b.d.) of kenaf whole stalks (Everglade 71) field dried and stored for two years was forage chopped to about 0.5 inch in length. The chopped material was stirred in a pulper for 45 minutes in hot water (75.degree. C) containing 3.5% caustic and 1.5% sodium sulfite based upon the weight of the dry kenaf. The pulped material was then discharged and the bast fibers were separated from the woody core fraction by screening on a laboratory Weverk fractionator using a 0.30 mm. slit screen. The total yield was 82%.